FEASIBILITY STUDY

NC 65/87 Intersection
Rockingham County
U-2560

Prepared by
Planning and Research Branch
Division of Highways
N. C. Department of Transportation

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2/27/90
Date

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NC 65/85 Intersection
Rockingham County
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I. DESCRIPTION

This report covers a preliminary study of improvements to the intersection of NC 65 and NC 87 located east of the Wentworth community in Rockingham County. Project location is shown on Figure 1. This project is included in the 1990-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection.

II. PURPOSE OF PROJECT

Existing Conditions

NC 65 and NC 87 are 2-lane major collectors that converge at an intersection just east of Wentworth and continue together eastward to Reidsville. In the general area of the intersection, the highways are surrounded by a variety of medium to high density development. Existing development include Rockingham Community College, Rockingham County High School, a State prison, Division of Highway district office and maintenance yard, Employment Security Commission office, flea market, commercial buildings, and residences.

Current traffic volumes at the intersection range from 5000 vehicles per day (vpd) on NC 87, to 7000 vpd on NC 65 west of the intersection, and 9000 vpd on NC 65/87 east of the intersection. Speed limit through the area is 45 mph. In the past 4 years, a total of 30 accidents occurred on the section of NC 65 from SR 2371 to SR 2374, resulting in an accident rate of 6.7 accidents/million vehicle miles. This rate is much higher than the statewide averages of 2.2 acc/mvm and 2.9 acc/mvm for 2-lane NC routes in rural and urban areas, respectively. The vast majority of the accidents involved rear-end and angle collisions.

Need for Improvements

Congestion, delays, and safety problems are being experienced at and near the intersection of NC 65 and NC 87. This observation is substantiated by the magnitude of existing traffic volumes and accident occurrences. In addition, existing roadside development contributes to the traffic flow problems by generating significant left turning movements on the 2-lane roads. Thus, the immediate but short term resolution of these problems is provision of turning lanes.

III. PLANNED PROJECTS RELATING TO STUDY

The studied section of NC 65 is expected to be encompassed by the proposed NC 65 Wentworth Bypass identified as R-531 in the current Transportation Improvement Program. This project is scheduled to begin

construction in FFY 1996. Based on an approved 1980 Environmental Assessment, the proposed improvement was to widen NC 65 to a multi-lane curbed width under the Alternate 1 plan (see Figure 2).

Division personnel has recently revealed plans to extend the existing 3-lane shoulder section which serves the Rockingham Community College campus located on NC 65 at SR 2467. The existing 3-lane pavement would be extended eastward to and through the intersection of SR 2371.

IV. RECOMMENDATIONS AND COSTS

An additional lane for left turns is warranted along NC 65 and NC 87 at and near the intersection of the two highways. For this lane to function properly and effectively alleviate the traffic problems, it is recommended the additional lane be provided on NC 65 from the end of the planned 3-lane extension at SR 2467 eastward for approximately 0.6 mile through the NC 65-87 intersection to just beyond the secondary entrance of the high school (near SR 2374), and also on NC 87 from SR 2082 (main entrance to high school) southward for approximately 0.1 mile to the intersection with NC 65 (see Figure 1). The 3-lane improvement on NC 87 would match the existing cross section north of SR 2082 which has a separate left turn lane serving school traffic. In addition to the above improvements, a desirable treatment is provision of a separate right turn lane on the NC 65 west approach to facilitate a large volume of right turns into NC 87.

Presently, NC 87 has stop sign control at NC 65. However, current intersection traffic volumes warrant a traffic signal. According to the Division Traffic Engineer, turn lanes are needed for the signal to operate effectively. Due to the large turning volume between NC 87 north and NC 65 east, placing a signal without turn lanes would result in more congestion and delays.

According to a Division Right-of-Way Agent, the existing rights-of-way are 40 feet along NC 65 and 50 feet along NC 87. Thus, additional right-of-way will be required to accommodate construction of an additional lane. In light of anticipated future improvements under R-531, sufficient additional right-of-way (approximately 60 feet to make a total width of 100 feet) should be acquired to allow for an ultimate 5-lane curbed section on NC 65. A 60-foot total right-of-way width should be adequate for widening on NC 87.

Estimated costs of widening the existing 22-foot pavement with shoulders to 33-foot pavement with shoulders and installing a traffic signal plus a right turn lane are as follows:

Roadway Construction (0.7 mi.)	$ 370,000
Signalization	30,000
Right-of-Way	1,200,000
Total	$1,600,000

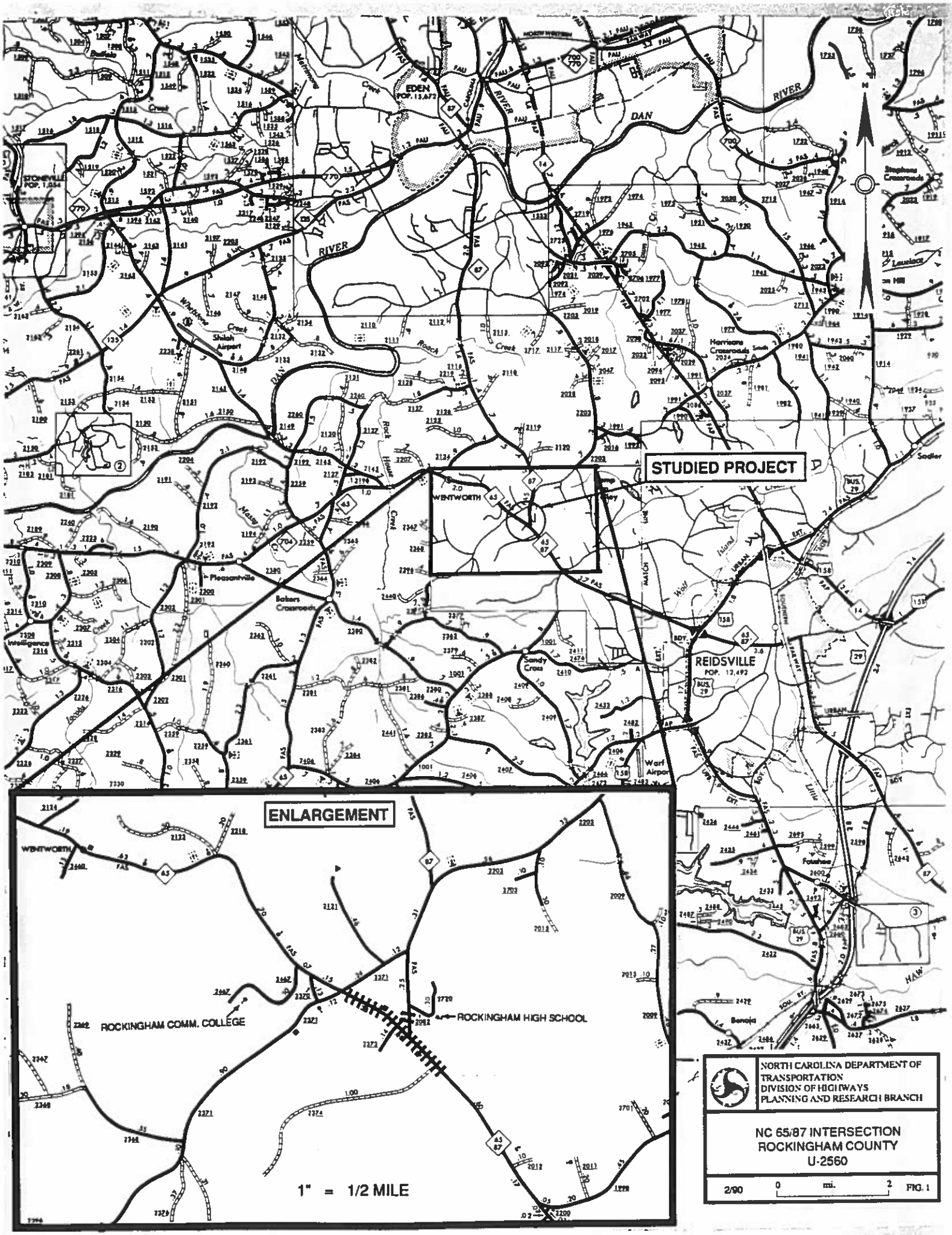
The construction and signalization costs includes engineering and contingencies, and the right-of-way cost includes relocation of 2 businesses

and 2 residences , acquisition cost, and utility adjustment cost. The cost estimates were prepared by the Preliminary Construction Cost Engineer and Right-of-Way Branch.

V. ALTERNATIVES

Due to the considerable cost of providing the improvements previously discussed, lower cost alternatives were investigated for funding considerations. One alternative is to reduce the additional right-of-way just to accommodate the 3-lane construction instead of the ultimate 5-lane construction on NC 65. Acquisition of only 20 feet of additional right-of-way would reduce the total right-of-way cost by approximately $500,000. A 60-foot right-of-way would avoid the taking of 2 businesses and 2 residences previously mentioned. The resulting total project cost would be approximately $1,100,00. Another possible cost saving is to use State forces rather than a contractor to construct the improvements. Construction by State forces would reduce the total construction cost to approximately $200,000 or total project cost to $900,000. The remaining alternative considered is scaling back the improvements to just providing separate left and right turn lanes at the intersection of NC 65 and NC 87 where the most serious problems occur. However, it would not produce a proportionate saving in overall cost. Furthermore, limiting the additional lane construction to the NC 65-87 intersection would not address other locations that have lesser but notable left turning and accident problems. Estimated total project cost for the reduced improvement within a 60-foot right-of-way is $450,000, including $150,000 for construction and $300,000 for right-of-way. Construction by State forces would reduce the overall cost to $400,000.

RGD/plr



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

NC 65/87 INTERSECTION
ROCKINGHAM COUNTY
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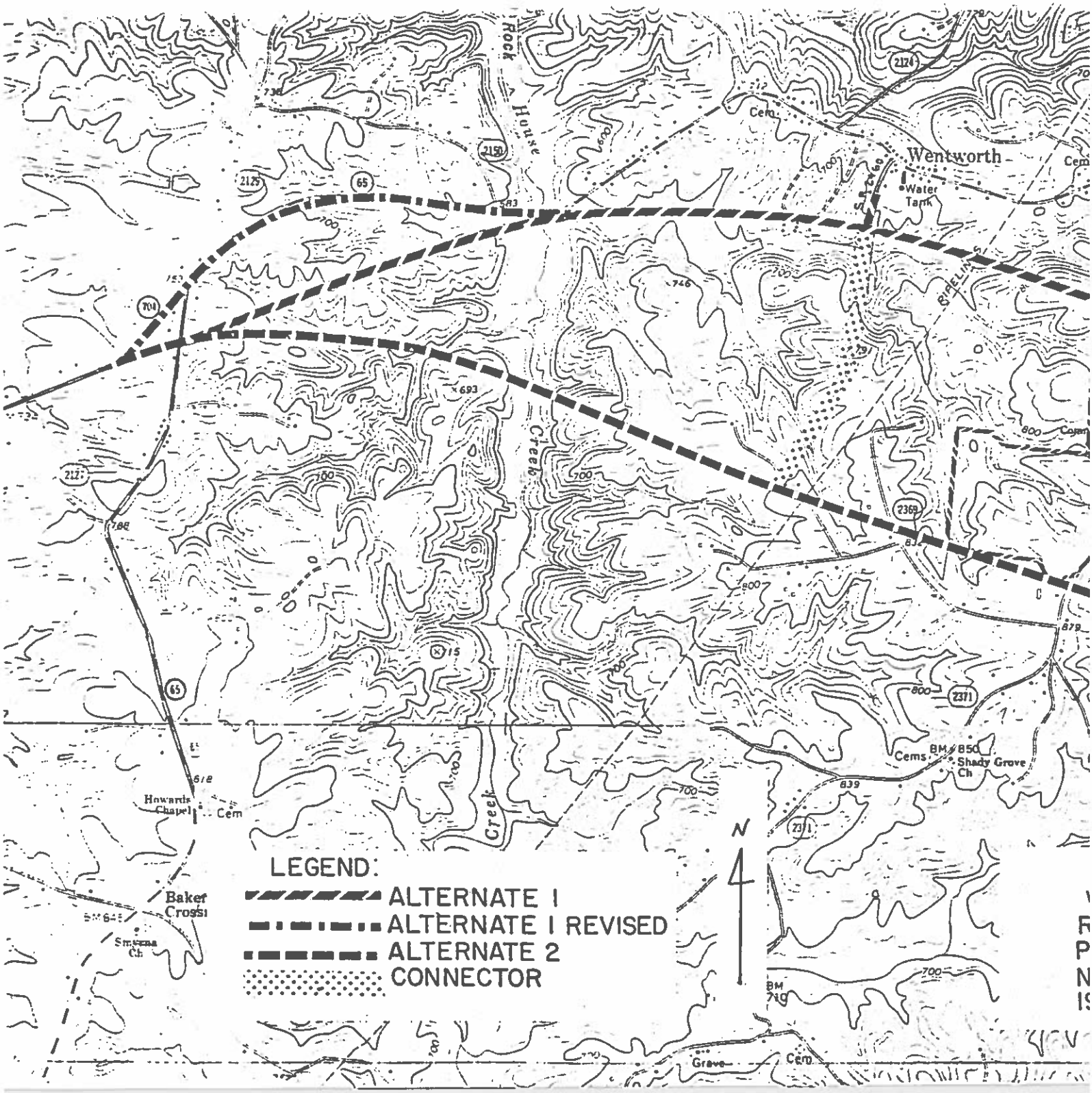
2/90 0 mi. 2 FIG. 1


Wentworth
Water Tank
Rock House Creek
Creek
Howards Chapel
Cem
Baker Cross
Smyrna Ch
Cems
BM 850
Shady Grove Ch
Grave
Cem
N
LEGEND:
ALTERNATE 1
ALTERNATE 1 REVISED
ALTERNATE 2
CONNECTOR